

Colours which the component Powders (Orpiment, Purple, Bise, and *Viride Aris*) have in the same Sunshine, you must acknowledge by this Experiment, as well as by the former, that perfect whiteness may be compounded of Colours.

From what has been said it is also evident, that the whiteness of the Sun's Light is compounded of all the Colours wherewith the several sorts of rays whereof that Light consists, when by their several refrangibilities they are separated from one another, do tinge Paper or any other white Body whereon they fall. For those Colours by Prop. 2. are unchangeable, and whenever all those rays with those their Colours are mixt again, they reproduce the same white Light as before.

PROP. VI. PROB. II.

*In a mixture of primary Colours, the quantity and quality of each being given, to know the Colour of the compound.*

Fig. 11. With the Center O and Radius OD describe a Circle ADF, and distinguish its circumference into seven parts DE, EF, FG, GA, AB, BC, CD, proportional to the seven musical Tones or Intervals of the eight Sounds, *Sol, la, fa, sol, la, mi, fa, sol*, contained in an Eight, that is, proportional to the numbers  $\frac{1}{9}, \frac{1}{10}, \frac{1}{10}, \frac{1}{9}, \frac{1}{10}, \frac{1}{10}, \frac{1}{9}$ . Let the first part DE represent a red Colour, the second EF orange, the third FG yellow, the fourth GH green, the fifth AB blue, the sixth BC indico, and the seventh CD violet. And conceive that these are all the Colours of uncompounded Light gradually passing

passing into one another, as they do when made by Prisms; the circumference DEFGABCD, representing the whole series of Colours from one end of the Sun's coloured Image to the other, so that from D to E be all degrees of red, at E the mean Colour between red and orange, from E to F all degrees of orange, at F the mean between orange and yellow, from F to G all degrees of yellow, and so on. Let p be the center of gravity of the Arch DE, and q, r, s, t, v, x, the centers of gravity of the Arches EF, FG, GA, AB, BC and CD respectively, and about those centers of gravity let Circles proportional to the number of rays of each Colour in the given mixture be described; that is, the circle p proportional to the number of the red-making rays in the mixture, the Circle q proportional to the number of the orange-making rays in the mixture, and so of the rest. Find the common center of gravity of all those Circles p, q, r, s, t, v, x. Let that center be Z; and from the center of the Circle ADF, through Z to the circumference, drawing the right line OY, the place of the point Y in the circumference shall shew the Colour arising from the composition of all the Colours in the given mixture, and the line OZ shall be proportional to the fulness or intenseness of the Colour, that is, to its distance from whiteness. As if Y fall in the middle between F and G, the compounded Colour shall be the best yellow; if Y verge from the middle towards F or G, the compounded Colour shall accordingly be a yellow, verging towards orange or green. If Z fall upon the circumference the Colour shall be intense and florid in the highest degree; if it fall in the midway between the circumference and center, it shall be

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